

# The Economic Logic of Open Science in Large-Scale International Projects

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## Abstract

The primary purpose of this paper is to explain the economic logic of open science in Large-scale International Projects (LISPs) in fusion-energy research by applying the Mertonian norms of Communalism, Universalism, Disinterestedness, Originality, and Skepticism (CUDOS). LISPs in fusion-energy research provide an adhering case for an application of the five Mertonian norms because they are on the edge between science and technology. Thus, LISPs can provide a fitting example of the productive balance between the community of scientists, who favor full disclosure of their results, and the community of technologists, who favor secrecy or exclusive possession of their results, as described in the New Economics of Science. On the side of the scientists, the publicly funded International Thermonuclear Experimental Reactor (ITER) project, currently the largest project in fusion-energy research, is a fitting example of the benefits of openness in science because all the intellectual property developed in the project is shared equally by all its seven global members. On the side of the technologists, the next phase of fusion-energy research will be most likely characterized by an influx of private funding and by a shift from open science to proprietary technologies, which can have a possible negative impact on future research due to exclusive possession. The evidence drawn from a series of interviews provides support to the main research question of this paper that science and technology policies, which favor openness in fusion-energy research, can provide greater economic and social utility to both communities.

## Keywords

Large-scale international projects, Fusion-energy research, Open science, Technology policy, Mertonian norms.

## Biography

**Dr. Marco Vincenzi** is currently a Senior Lecturer in the department of Economics at the University of New Hampshire. His research interests include the Economics of Innovation and Project Management. His research currently focuses on Alternative Energy, Science Policy, and Technological Innovation and has been published in journals, such as the *International Journal of Technology Management*, *Technology in Society*, and *The Agricultural and Resource Economics Review*. He received an MSc in Economics and a PhD in Public Policy and Management from Carnegie Mellon University after his undergraduate studies in Economics at Bocconi University.